"It's Not the Voting that's Democracy, It's the Counting"[1]
Public Attitudes towards the Electoral Process in the Wake of HAVA

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Abstract

The Help America Vote Act is aimed at improving electoral practices and educating voters about changes in voting technology and procedures. A major consequence of this legislation has been the replacement of punch card and mechanical lever voting machines with computer-based voting in more than one-third of U.S. counties since 2004 (Brace, 2006). We ask how voters react to these changes, focusing on preferences over types of voting technology and confidence in U.S. elections among voters in California. We are particularly interested in how the effort of local election officials affects these judgments in the face of change. Our findings suggest that spending aimed at educating voters is associated with confidence in U.S. elections but has little relationship with enthusiasm for technology used locally. Partisanship is strongly associated with both judgments about the electoral system and voting technology.

KEYWORDS: voter confidence, HAVA, voting technology, election administration, contextual analysis

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Controversies in voter registration, vote casting, and counting came to the fore during the 2000 U.S. Presidential election and spurred a series of efforts aimed at improving America's electoral processes. The principal response from the federal government was ultimately the Help America Vote Act (HAVA) of 2002, which created a new federal agency, the Election Assistance Commission (EAC), to act at as a clearinghouse for information, develop standards for equipment and best practices, and disburse funds to states and local governments for election administration improvement, voting systems replacement, and voter education (Montjoy, 2005; Saltman, 2006, p. 196). In fiscal year 2004, the EAC disbursed more than $300 million to states for the replacement of voting equipment and about $350 million to educating voters and poll workers about technological and procedural changes.[2]

A vast community of public officials at the federal, state, and local level has invested billions of dollars in improving voting technology. The questions of ballot presentation, vote recording, and access – while somewhat arcane – speak to a fundamental presumption of democratic elections: Democratic governments should be concerned that everyone's vote is counted, and counted fairly. It is easy to see why so much attention has been paid to the topic.

This substantive response from government has been matched, and in many cases informed, by academic interest in the topic of election administration. Scholars have taken particular interest in the relative amount of error in casting, recording, and counting votes associated with types of electoral machine used (punch card, optical scan, touch screen) (e.g.,

[2] The EAC administers several programs disbursing money to states. In addition to these funds linked to Title I Section 102 and Section 101 of HAVA, respectively, the EAC has disbursed more than $2.3 billion in requirement payments related to funding state efforts to comply with the provision of uniform and non-discriminatory election practices, e.g., the construction of statewide voter registration lists (U.S. Election Assistance Commission, 2007).

Brady, Buchler, Jarvis, & McNulty, 2001; Caltech/MIT Voting Technology Project, 2001).[3] As crucial as this is, voter confidence in the system should be a concern as well. Several recent papers do ask how election technology and administration relate to confidence (e.g., Alvarez, Llewellyn, & Hall, 2006; Atkeson & Saunders, 2007; Stein & Vonnahme, 2007), but this topic generally remains understudied.

We investigate how voters respond to a volatile climate of changing election technology affected by HAVA, with a special interest in voter confidence and preferences for technology. In the next section of this paper, we examine types of voting technology in use and patterns of change in the use of voting technologies in the U.S. as well as in California, our primary research setting. Then we ask whether changes in voting technology and local expenditures to educate voters about changes in voting practices are associated with voter confidence in the electoral system and preferences over voting technology. We test a set of expectations about these judgments using data from a 2004 survey conducted by the Public Policy Institute of California (Baldassare, 2004). We conclude with observations about the implications of our research for the broad effort underway to restore confidence in U.S. electoral institutions in the wake of controversies observed during the 2000 and 2004 presidential elections.

[3] There are a series of excellent studies on this issue, many cited here but many other excellent reports are available from political scientists maintaining stores of related resources on-line. For example, readers interested in this topic would find useful materials at the Caltech/MIT Voting Technology Project, http://vote.caltech.edu/; the Center for American Politics and Citizenship at University of Maryland, http://www.capc.umd.edu/rpts/VotingTech_par.html; and the Election Administration Research Center at University of California, Berkeley, http://earc.berkeley.edu/. A parallel and complementary effort among computer scientists aims at vetting the security of electronic and computer-based vote forms, and improving that technology. For example, see A Center for Correct, Usable, Reliable, Auditable, and Transparent Elections (ACCURATE), http://accurate-voting.org/.

Voting equipment use and change, 2002-2006

To provide some context to the question of voter reaction to voting technology, we review the major types of voting systems in use: hand-counted paper ballots, punch cards, mechanical lever machines, optical scan ballots, and direct record electronic (DRE) voting machines (Fischer, 2001). The hand-counted paper ballot is the oldest, still in use in rural areas (Caltech/MIT Voting Technology Project, 2001). Voters mark ballots and place them in boxes to be counted and tabulated by officials. It is among the most reliable systems, with lower residual vote rates than other technologies (Ansolabehere & Stewart, 2005). As shown in Table 1, only 57 jurisdictions used hand-counted paper ballots in the 2006 election nationwide (Brace, 2006).

HAVA targets mechanical lever and punch card systems for replacement with computer-based technology.[4] Lever machines and punch cards have particularly high residual vote rates (Ansolabehere & Stewart, 2005). Mechanical lever voting booths present voters with a grid of mechanical switches on a panel and are enclosed by a privacy curtain. The voter indicates her vote choices by turning these levers (Fischer, 2001). Made famous by mishaps in Palm Beach and Broward Counties (FL), punch cards produce among the highest residual vote rates (Ansolabehere & Stewart, 2005; Brady, Herron et al., 2001), as well as the largest gaps among voters in different racial and ethnic groups (Alvarez, Sinclair, & Wilson, 2004; Sinclair & Alvarez, 2004; Tomz & Howeling, 2003). To cast votes using punch cards, voters dislodge small perforated chads. The ballots are then counted by a computer card reader (Fischer, 2001).

[4] *Note to editor and reviewers: We include information about voting systems to provide readers a sense of the machines in use and changes underway. If this information is deemed redundant or unnecessary, we will remove or compress the next two paragraphs.*

Optical scan systems and DRE machines are preferred voting technologies under HAVA. To use an optical scan ballot, a voter marks his choices on a paper ballot by darkening a bubble or completing a line next to her choice. These ballots are scanned by computer readers and tabulated. While the overall residual vote rate with optical scan machines is one of the lowest (Ansolabehere & Stewart, 2005; Brady, Buchler et al., 2001), it can produce high gaps in errors across racial groups (Tomz & Howeling, 2003). DRE machines are the most popular technology in use (Baldassare, 2004; Hall & Alvarez, 2004; Stein & Vonnahme, 2007) but have proven controversial. DRE machines present voters with a touch screen interface to indicate their choices (Herrnson et al., 2005). One source of controversy is their potential vulnerability to computer manipulation (Wagner, Jefferson, & Bishop, 2006). In addition, the inability to audit votes in early DRE systems has led many states to require DREs be equipped with Voter Verified Audit Paper Trails (Election Reform Information Project, 2006), which keep an alternative record of ballot choices (Fischer & Coleman, 2005).

As a result of HAVA, U.S. counties have undertaken a tremendous change in the use of voting technology. Election Data Services, a Washington D.C.-based consulting firm tracks the types of voting equipment in use in the U.S. In 2006, it found that one-third of the nation's voters, approximately 55 million voters, would use new voting equipment for that year's election – equipment replaced since the 2004 federal election (Brace, 2006). Table 1 summarizes a portion of this report, showing the types of equipment used in November 2002, 2004, and 2006 elections. The use of punch card and mechanical lever voting systems has decreased dramatically, as these systems are replaced by computer-based technologies, especially DRE. Only 13 U.S. counties, less than 1 percent, planned to use punch card machines in the 2006 election, a large drop in the use of this system from the 14.7 percent of counties (459) using

punch cards in 2002. In 1998, 34.3 percent of counties across the U.S. used punch card systems (Fischer, 2001). In total, 44.5 percent of counties nationwide changed their voting equipment between November 2002 and November 2006, with most of this change – 34.2 percent – occurring between November 2004 and November 2006.

[Table 1 about here]

A similar, if less dramatic, wave of change swept California between November 2000 and November 2004,[5] shown in Table 2. Between 2000 and 2004, the Secretary of State's Office reports three types of voting technologies in use – punch card, optical scan, and DRE machines. Election reform in California began prior to the implementation of HAVA (Lesher, 2002; MacDonald & Cain, 2005), due to the passage of the Voting Modernization Bond Act of 2002. The ballot referendum allowed the state to raise $200 million in general obligation bonds to help local governments acquire new voting equipment. It created the state's Voting Modernization Board. Since 2002, 17 counties have changed their voting equipment, also exemplifying this shift from punch card machines to forms of electronic voting. Eight counties changed their technology between the 2002 federal and state elections and the 2003 special election on the Governor's recall. An additional 17 counties adopted new technology for the 2004 election. Three counties – Napa, Orange, and San Bernardino – changed their voting equipment twice during these three years, illustrating the claim that "In California, counties have lurched from one voting system to another as the state has written and rewritten standards" (Levey, 2006, p. A1).

[Table 2 about here]

Voter technology preferences and confidence

[5] We focus on 2000-2004, but California changes continue. In August 2007, Secretary of State Bowen decertified California DRE machines (California Secretary of State, 2007b).

While political scientists have taken a great interest in the role of general political trust in officials and institutions (e.g., Hetherington, 2004; Warren, 1999), little research investigates confidence in elections and voting technology and to our knowledge, none of this research investigates how *change* in voting technology is associated with attitudes about elections.[6] Several survey projects associated with the Caltech/MIT Voting Technology Project investigate voter confidence. Hall and Alvarez (2004) report the results of a national survey on voting equipment and find DRE machines enjoy higher levels of popularity than other types of voting equipment. They also pool surveys conducted 2004-2006, and show that nationally, more than 87 percent of voters are confident that their presidential vote was "counted as you intended" (Alvarez et al., 2006). A 2006 Pew Research Center survey cited by Atkeson and Saunders (2007) shows the same amount of confidence in the accuracy of vote counts, and 85 percent of the respondents to their own pooled surveys conducted in New Mexico and Colorado said they we confident their vote counted as intended.

More than 4 in 5 survey respondents, in repeated national and subnational samples – express confidence in elections; there is far more confidence in the election administration than not. However, we might all normatively prefer to see even more confidence in the system. Setting the bar high, we think all voters should have confidence that their votes will be counted. In a broader sense, the legitimacy of the electoral process lies at the heart of the legitimacy of the political system as a whole. If the electoral process is seen to be unfair then outcomes will similarly be seen to be unfair and less legitimate. Citizen assessment of the fairness and integrity of the political system as a whole is thus causally related to the seemingly narrow question of the

[6] Herrnson and his colleagues (2005) investigate trust responses to DRE machines, but do not examine how people respond to different machines or to change.

conduct of elections at the local level. HAVA and related reforms at the state level have meant that a great deal of time, money and effort have gone into fixing things where the rubber meets the road of America's democratic travels.[7]

Students of voting technology, election administration, and voter confidence have tended to focus on individual level characteristics and the type of technology voters use. Alvarez, Llewellyn, and Hall (2006) find race, age, gender, and education levels are associated with confidence. Atkeson & Saunders (2007) similarly find relationships between income and education and voter confidence in elections. Both studies also investigate how voters feel about electronic voting or the machines their respondent use, with Alvarez, Llewellyn, and Hall showing that perceptions about the susceptibility of DREs to fraud and their perceived accuracy are related to trust. Voter experiences with technology, their affect toward the voting method used, and evaluations of the voting experience at the polling place are each associated with confidence (Atkeson & Saunders, 2007; Stein & Vonnahme, 2007). There is also a strong partisan effect at work – Republicans tend to be more confident than Democrats that their votes count (Alvarez et al., 2006; Atkeson & Saunders, 2007; but see Stein & Vonnahme, 2007).

We assess voter confidence in the electoral process as a whole by addressing two research questions deriving from this body of work on voting technology and voter confidence. We ask whether voters respond to the efforts of national, state, and local officials to improve the electoral procedures and technology, as mandated by HAVA and California's voting modernization efforts. We are interested both in voter orientations toward the electoral system – specifically their confidence that their own votes and others' are counted accurately – as well as

[7] An edited volume by Palazzolo and Ceasar (2005) provides thoroughgoing case studies of HAVA implementation in nine states.

their preferences for voting technology – whether they have likes and dislikes when it comes to particular kind of ballot technology (e.g., punch card, optical scan, or DRE).

It is worth noting that we have a compelling null hypothesis: Voters may have unreliable, completely stochastic positions on these matters, with little response to systematic changes in procedures or technology. While the standard model of the uninformed voter has undergone substantial revision in recent years (see especially Lupia & McCubbins, 1998; Popkin, 1991), it is nevertheless the case that voters are likely to pay only intermittent attention to politics and have little interest in procedures or technology outside of scandals and major national events like the 2000 presidential election recount in Florida. However, voting technology has been a subject of increasing attention in California, and presumably in the rest of the U.S. as well. We used the on-line newspaper resource NewsBank(2007) to assess coverage of election technology in six California newspapers: *Orange County Register*; *Press Enterprise* (Riverside), *Sacramento Bee*, *San Diego Union Tribune*, *San Francisco Chronicle*, and *San Jose Mercury News*. We conducted a set of structured searches of the NewsBank database for stories containing the phrases "electronic voting" and stories with both phrases "voting technology" and "county" in the same article, each year from 1999 to 2004. Trends in the frequencies of these word combinations are shown in Figure 1.

[Figure 1 about here]

California media attention to electoral practice has increased. Thus, while we might think voters are completely ignorant of the mechanics of elections, there is also a reasonable likelihood that voters will be attentive to these issues, in light of recent changes in voting practices. A premise of HAVA-related reforms is that improving election practice is important to voter confidence in the process of elections themselves (Ford, Carter, Michel, & Cutler, 2002).

What do voters think about voting systems?

In October 2004, the Public Policy Institute of California (PPIC) asked a statewide sample of the state's residents, "In general, how would you prefer to cast your vote—electronically on a touchscreen machine, by punch card, by paper ballot with a pen, or by some other method?" (Baldassare, 2004). Responses are reported in Table 3, cross-tabulated with the actual system in use in the respondent's county at the time the survey was conducted (California Secretary of State, 2004). We follow Alvarez , Llewellyn, and Hall (2006) in interpreting respondents selecting "paper ballot with a pen" as indicating support for optical scan systems.

[Table 3 about here]

There is a weak association between the system currently in use and the preferred system. A plurality of respondents in counties using DRE machines said they prefer touch screen machines. A plurality of respondents in counties still using punch cards in 2004 indicated a preference for this type of voting equipment. Among voters in counties using optical scan systems, this type of device tied with DRE machines as most preferred. No system seems to generate enthusiasm although, of the three, punch cards have the overall lowest level of support among the three specific options named (24 percent in the total sample). Overall, touchscreen DREs are liked most of all, despite optical scan being the most commonly used system, but even in places where touch screen voting is used the majority of the people surveyed would prefer a different method. Importantly, voters appear to have opinions about the subject. The ballot technology issue was raised during the 2003 gubernatorial recall (MacDonald & Cain, 2005). It received sustained attention in California through 2004, as suggested by Figure 1. Media commentators looked back to the 2000 election and raised fresh concerns (e.g., Kurtzman, 2004).

The PPIC survey also asked respondents about their confidence in electoral procedures in general, not just their taste for technology. The survey included two items, asking Californians if they have confidence in the "system in which votes are cast and counted in this country" and their level of confidence that their own "vote will be properly and accurately counted." Responses to these questions are shown in Table 4.

[Table 4 about here]

We are interested in whether these judgments and preferences are associated with technology change and the efforts of officials in the wake of HAVA. As shown above, a number of California counties changed their voting equipment between the 2003 gubernatorial recall and the 2004 presidential election. In implementing HAVA, the state created the Pollworker Training and Voter Education Program in order to distribute money associated with Title I, Section 101 of the Act. Section 101 requires states to use funds associated with this section for "Educating voters concerning voting procedures, voting rights, and voting technology," ("Help America Vote Act of 2002," 2002) among other functions. The Secretary of State invited counties to submit plans for the use of these funds and entered into contracts with 42 counties to disburse more than $8.7 million to educate voters and pollworkers about election technology. The office ultimately reimbursed approximately $6.8 million for HAVA transition education (California Secretary of State, 2007a). [8]

Are voter judgments associated with technological change and HAVA expenditures?

We ask whether these county-level efforts are associated with confidence in elections and preferences for voting technology, in the face of technological change. We model response to

[8] We would like to thank the Secretary of State's office and Chris Reynolds for access to county level HAVA Section 101 disbursements.

PPIC's questions about whether an individual thinks her vote counts, whether the votes of others are counted accurately, and whether she is presently using her most preferred election technology. The dependent variables are all dichotomous measures tabulated in Table 4. We are primarily interested in how these are associated with change in technology at the local level and local per capita spending under this HAVA-funded poll worker and voter education program. This allows us to test the direction and strength of relationships between voter orientations, change, and local expenditure. We specify two types of change – shifts to the use of DRE machines and adoption of optical scan systems.

We are guided, in part, by the stated intentions of election officials. Federal, state, and local election administrators have changed voting technology in order to produce more confidence in electoral processes. State and local election officials distribute HAVA Section 101 to educate people about these changes. These efforts should affect citizen perceptions of the democratic process and technology, unless our null expectation obtains and voters are not attentive to these shifts. We also include specifications of these models with interaction of types of change and local spending to test whether change moderates the relationship between local expenditures and voter confidence in the system and new voting technologies.

We include party identification in these models, measured using a seven-point scale with low numbers indicating stronger Democratic identification and higher numbers indicating stronger Republican identification. As we have noted, Republicans tend to have greater confidence in the electoral system than Democrats (Alvarez et al., 2006; Atkeson & Saunders, 2007). We also square party identification to relax the assumption that any relationship between these orientations and partisanship is linear. Consequently, we are able to determine if independents and strong partisans are different from each other in making these evaluations.

In these regressions, we also include several control variables. We measure age using a six-point scale that groups respondents into age groups 18-24, 25-34, 35-44, 45-54, 55-64, and over 65. The PPIC survey asked respondents both their age in year as well as this item in which respondents could place themselves in age ranges. We use the age-range measure because more respondents answered this version of the question. We also control for education, with an indicator coded 1 for respondents with a high school education or less, 2 for respondents who finished high school or hold a GED, 3 for respondents with some college, 4 for college graduates, and 5 for respondents with any post graduate education. The models also include dummy variables indicating a respondent's race or ethnicity, as well as their gender. We also include a measure of self-reported voting history. We anticipate that respondents who say that they always vote will have a greater sense of efficacy that needs to be controlled for in these models. Finally, the models include the population size in the respondent's county of residents (U.S. Census Bureau, 2000).

We report the maximum likelihood coefficients and robust standard errors for six logit models in Table 5. In estimating all of these models, we clustered respondents by their county of residence to relax the assumption that respondents living in the same county are observed independent of one another. In the first two models, the dependent variable is the respondent's perception about the counting of their own vote. In columns three and four, we model judgments about the accuracy of counting all votes. And in the final two columns, we present models of whether the respondent is using her most preferred voting technology.

[Table 5 about here]

We find relationships between the adoption of new technology and these judgments, as well as relationships between these orientations and local efforts to educate voters about HAVA

changes. These are interactive relationships: types of change moderate the relationship between local HAVA Section 101 spending and voter confidence. The panels of Figure 2 show plots of the relationship between per capita spending and the probability a respondent thinks her vote is counted (2a), that generally votes are counted fairly (2b), and is using the type of election machine she most prefers (2c). This relationship is moderated by the type of change undertaken in this counterfactual respondent's county of residence.

The mean per capita spending observed in this data is $0.20. Moving from one standard deviation below the mean ($0.07) to one standard deviation above ($0.32), using CLARIFY (Tomz, Wittenberg, & King, 2001), we estimate that the probability a resident of a county that has adopted DRE technology thinking his vote is counted properly actually reduces slightly, from 0.96 to 0.94 ($p<.05$). A similar spending shift in a county adopting an optical scan system is associated with a larger and positive shift in egocentric confidence, from .90 to .96 ($p<.05$).

The results are slightly different for confidence that votes are generally counted fairly. Moving from one standard deviation below the per capita spending mean to one standard deviation above it, the probability a resident of a county that has adopted touch screen technology thinking vote generally are counted increases, from .87 to .91 ($p<.05$). A similar spending shift in a county adopting an optical scan system is associated with a shift in egocentric confidence from .82 to .87 ($p<.05$). The probability changes associated with county-level HAVA spending and preferences over specific machine types are not reliable. However, we do note that given the popularity of DRE machines, residents of counties that adopted touch screen devices in 2004 are more likely to be using preferred equipment than residents of counties adopting optical scan systems.

[Figure 2 about here]

We also see curvilinear relationships between partisanship and voter judgments on these items, indicated by consistently significant quadratic partisanship coefficients in these models. These relationships are plotted in the panels of Figure 3. Strong partisans are relatively more likely than weak partisans and independents to think their own votes count and that the system accounts for votes accurately. However, this is an asymmetric relationship: strong Republicans are substantially and reliably more confident than strong Democrats. For example, a strong Republican said with a probability of .97 that the system records votes accurately, while for strong Democrats the probability of rendering this judgment was .92 ($p<.05$); comparing a strong Republican to an independent, the non-partisan is estimated to express system confidence with a probability of .80 ($p<.05$).

The relationship between partisanship and preferences over machine type is different. Strong partisans are less likely than independents to be using the machine type they most prefer. Again, this is asymmetric, but less so. Strong Republicans are even less likely to be using the machine they most prefer (pr=.28) than strong Democrats (pr=.35); this difference is somewhat reliable ($p<.1$). Independents are more likely to be using the machine they most prefer, with a probability of .38, which is significantly different from strong Republicans ($p<.05$), but not from strong Democrats. A majority of respondents to the survey live in areas with optical scan systems (66 percent). The difference of strong Republicans from independents and Democrats here may be due to the fact that Republicans are far less enthusiastic about optical scan machines, with 21.6 percent indicating this as their preferred voting method, compared to 32.4 percent among Democrats and 31 percent among independents. Partisans are also more supportive of punch card technology than independents, with 22.6 percent of Democrats and 28 percent of Republicans preferring these devices, compared to 18 percent of independents.

[Figure 3 about here]

In this sample of California residents, a number of the control variables are reliably related to judgments about the electoral system and voting technology in substantively interesting ways. In particular, older, better educated, and male respondents have more confidence that their own votes are counted and that the nation's election systems record votes accurately. Asians are more likely to have confidence in the system, although this special confidence does not systematically extend to the counting of their own votes. Not surprisingly, regular voters are also more confident that their vote counts and that the system works. Residents of larger places are less certain their votes count. However, none of these variables are reliably related to respondents liking the voting machine in use in their county. African American respondents are less likely than other respondents to be using the machine they most prefer. A large proportion of the African Americans who responded to the PPIC survey live in a county with optical scan technology (74.8 percent among blacks), but a larger plurality would prefer DRE voting technology – 42.1 percent, compared to 35 percent in the overall sample.

Discussion

The efforts of federal, state, and local election officials do seem to reverberate with voters. The mission statement of the California Association of Clerks & Election Officials says that the purpose of that organization and its membership is to "promote public confidence in the administration of elections, and...to develop a high standard of proficiency, uniformity of practice and procedures in these disciplines. (California Association of Clerks & Election Officials, 2007)

Election officials do have an effect on voter's perceptions of the system as a whole, but do not seem to influence preferences over the types of machines used in voting. Both

assessments are associated with other factors, notably partisanship. While the work of election officials does have an impact, when placed in wider context it is relatively modest and somewhat circumscribed. The work of HAVA is, as those involved attest, important work but is no panacea for a lack of confidence in American elections. The strong role for partisanship in coloring assessments suggest that other, more overtly political, events would seem to loom larger in voter assessments than concerns over voting machinery in and of themselves. That said, the results presented here lend support to the idea that county registrars can affect voter attitudes in the system, there is still much work to be done. Future research can probe these differences more deeply, specifically examining how local election officials spend their money, and which of these activities are more effective in achieving the goals set out by the California Association of Clerks & Election Officials.

Table 1. U.S. voting equipment by county, 2002-2006

	2002	2004	2006
Punch cards	459	330	13
Mechanical Lever Machines	288	264	62
Hand-counted Paper Ballots	304	298	57
Optical Scan Ballots	1,360	1,443	1,752
Direct Record Electronic	547	631	1,142
Mixed systems (Multiple technologies)	156	148	92
Total	3,114	3,114	3,118

Source: Brace (2006, p. 3).

Table 2. California voting equipment by county, 2000-2004

	2000	2002	2003	2004
Punch card	30	28	20	12
Optical Scan	27	27	34	36
DRE	1	3	4	10
Total	58	58	58	58

Source: California Secretary of State (2000; 2002; 2003; 2004)

Table 3. Preferences for voting machines by actual technology in use, California 2004

		Actual Machine used			
		Touch Screen	Punch Card	Paper Ballot/ Optical Scan	Total
Preferred Machine	Touch Screen	44.6% (269)	26.5% (22)	31.2% (416)	35.0% (707)
	Punch Card	18.4 (111)	41.0 (34)	25.5 (340)	24.0 (485)
	Paper Ballot/ Optical Scan	23.4 (141)	20.5 (17)	31.1 (414)	28.3 (572)
	Other	13.6 82	12.1 10	12.2 162	12.6 254
	Total	100.0 603	100.0 83	100.0 1,332	100.0 2,018

Sources: Baldassare (2004), California Secretary of State (2004)

Table 4. Voter confidence in the electoral process, machine preference, California 2004

Egocentric vote confidence			
"Thinking about your own vote, how much confidence do you have that your vote will be properly and accurately counted?"			
Very confident	53.77 (941)	Confident	82.34 (1,632)
Somewhat confident	37.09 (649)		
Not very confident	6.63 (116)	Not confident	17.66 (350)
Not at all confident	2.51 (44)		

System confidence			
"How much confidence do you have in the system in which votes are cast and counted in this country?"			
Great deal	27.65 (548)	Confident	90.86 (1,590)
Quite a lot	26.08 (517)		
Some	28.61 (567)		
Very little	16.15 (320)	Not confident	9.14 (160)
None	1.51 (30)		

Machine preference	
Does the respondent vote using the type of voting equipment he most prefers?	
Yes	35.53 (717)
No	64.47 (1,301)

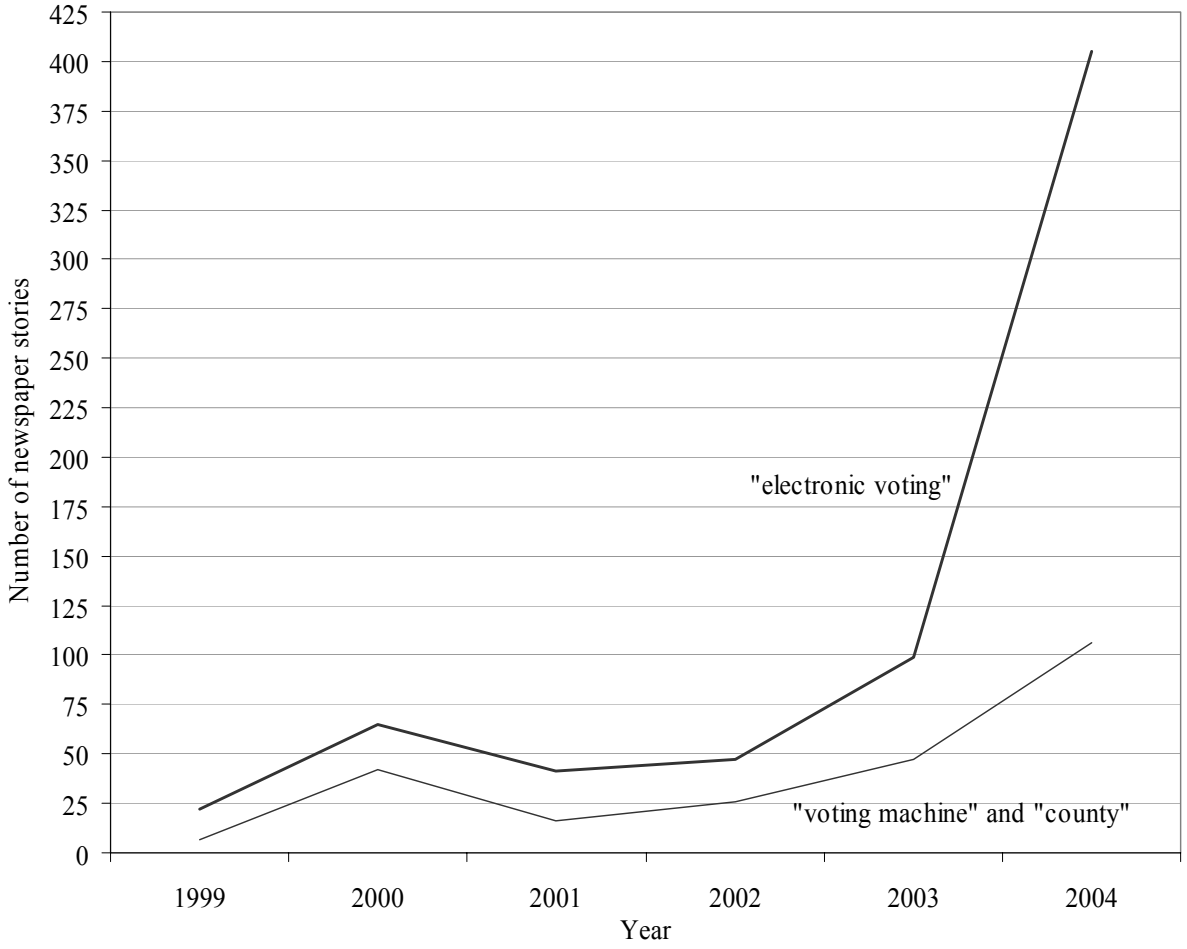
Sources: Baldassare (2004), California Secretary of State (2004)

Table 5. Modeling confidence and vote equipment preferences, California 2004

	Egocentric Vote		System Confidence		Machine Preference	
	β (robust s.e.)	β (robust s.e.)	β (robust s.e.)	β (robust s.e.)	β (robust s.e.)	β (robust s.e.)
Change to DRE	0.703**	0.969***	0.387*	-0.023	0.190*	0.135
	(0.228)	(0.220)	(0.172)	(0.164)	(0.096)	(0.190)
Change to OS	0.386	-0.511**	-0.007	-0.426*	-0.661***	-0.583†
	(0.342)	(0.198)	(0.150)	(0.175)	(0.180)	(0.354)
HAVA§101 per capita	-0.372	-0.874	0.395	-0.662	-0.459	-0.510
	(0.765)	(0.950)	(0.497)	(0.552)	(0.379)	(0.648)
Change(DRE)*§101	–	-1.100	–	2.376***	–	0.286
		(1.152)		(0.678)		(0.785)
Change(OS)*§101	–	4.577***	–	2.320**	–	-0.323
		(1.064)		(0.681)		(1.120)
Party Identification	-0.464**	-0.470**	-0.657***	-0.662***	0.211†	0.211†
	(0.168)	(0.165)	(0.167)	(0.165)	(0.115)	(0.115)
Party Identification^2	0.080***	0.081***	0.116***	0.117***	-0.032*	-0.032*
	(0.023)	(0.023)	(0.024)	(0.024)	(0.015)	(0.015)
Age	0.097†	0.099†	0.089*	0.087*	-0.040	-0.040
	(0.058)	(0.058)	(0.038)	(0.038)	(0.043)	(0.043)
Education	0.265**	0.262**	0.261***	0.254***	0.023	0.023
	(0.091)	(0.091)	(0.044)	(0.042)	(0.064)	(0.065)
Black	-0.129	-0.143	-0.214	-0.194	-0.416*	-0.411*
	(0.383)	(0.384)	(0.259)	(0.257)	(0.212)	(0.210)
Latino	-0.032	-0.024	-0.112	-0.100	-0.062	-0.061
	(0.398)	(0.405)	(0.121)	(0.119)	(0.165)	(0.165)
Asian	0.558	0.528	0.738**	0.696**	0.062	0.061
	(0.696)	(0.704)	(0.278)	(0.278)	(0.251)	(0.250)
Female	-0.466**	-0.466**	0.153	0.177	-0.028	-0.027
	(0.153)	(0.153)	(0.109)	(0.106)	(0.087)	(0.087)
Always Vote	0.555**	0.555**	0.423***	0.417***	0.113	0.112
	(0.176)	(0.179)	(0.103)	(0.104)	(0.101)	(0.101)
Population (10M)	-0.563	-0.615***	0.056	0.003	0.012	0.000
	(0.357)	(0.107)	(0.160)	(0.101)	(0.188)	(0.179)
Constant	1.427*	1.537*	0.508	0.709*	-0.442	-0.433
	(0.665)	(0.658)	(0.347)	(0.341)	(0.276)	(0.312)
N	1,734	1,734	1,962	1,962	1,996	1,996
Pseudo R^2	.082	.088	.102	.105	.029	.029
χ^2	152.38***	581.13***	466.20***	876.45***	604.52***	1,123.58***

***p<.001; **p<.01, *p<.05, †p<.10

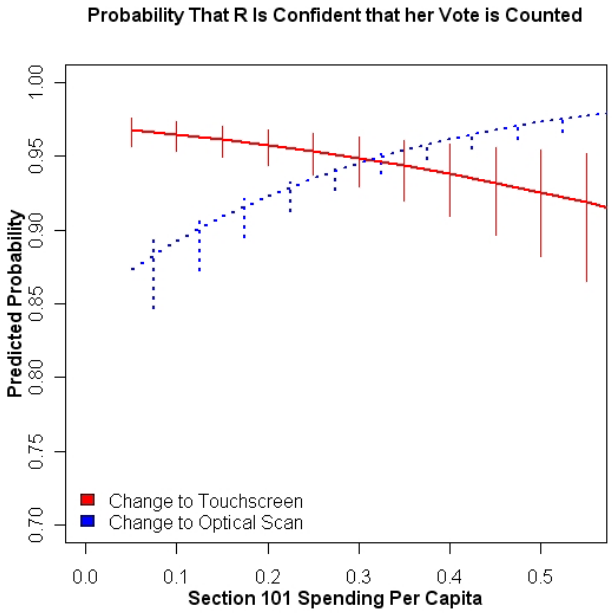
Figure 1. California newspaper mentions of electronic voting, voting technology, 1999-2004



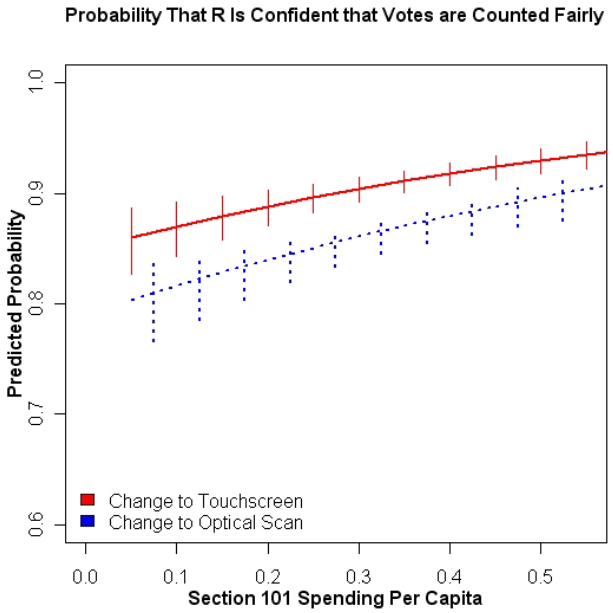
Source: NewsBank (2007) archives of California newspaper: *Orange County Register*; *Press Enterprise* (Riverside), *Sacramento Bee*, *San Diego Union Tribune*, *San Francisco Chronicle*, and *San Jose Mercury News*.

Figure 2. Technology change, HAVA spending, and judgments about elections, equipment

2a. Egocentric vote confidence



2b. System confidence



2c. Machine preference

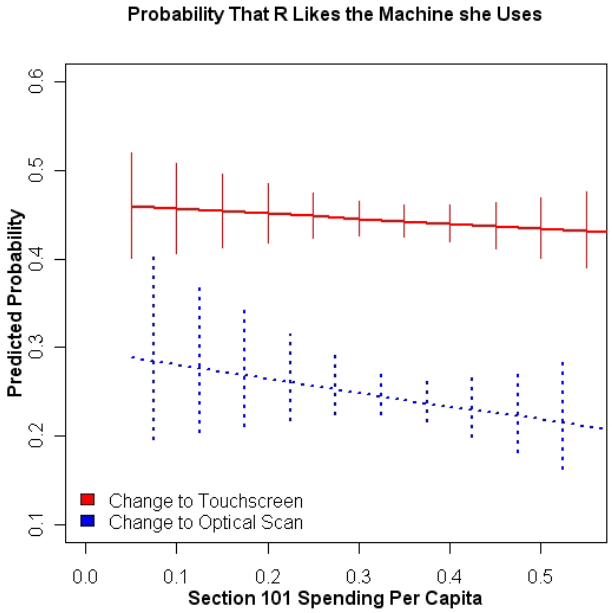
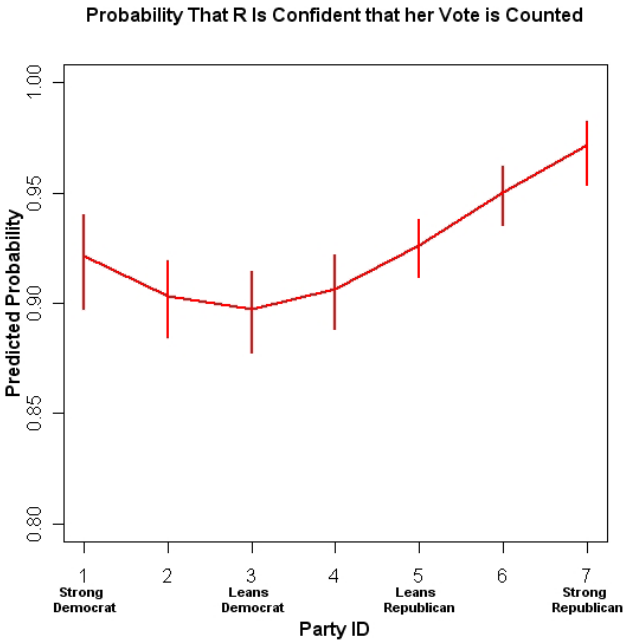
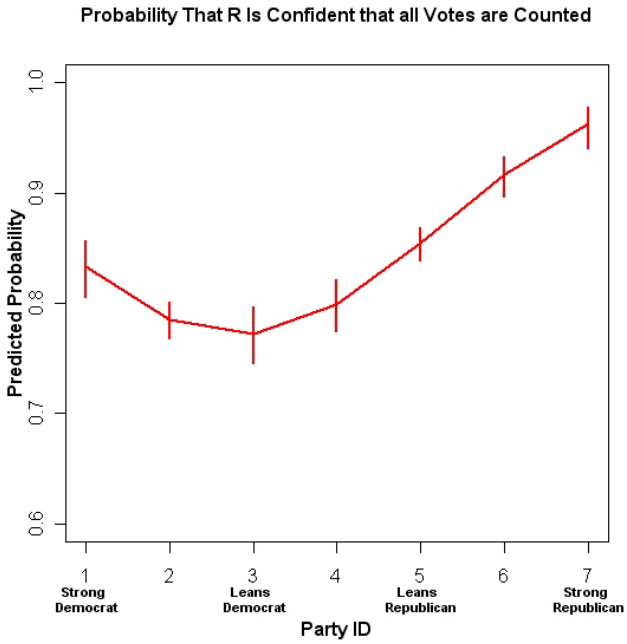


Figure 3. Partisanship and judgments about elections, equipment

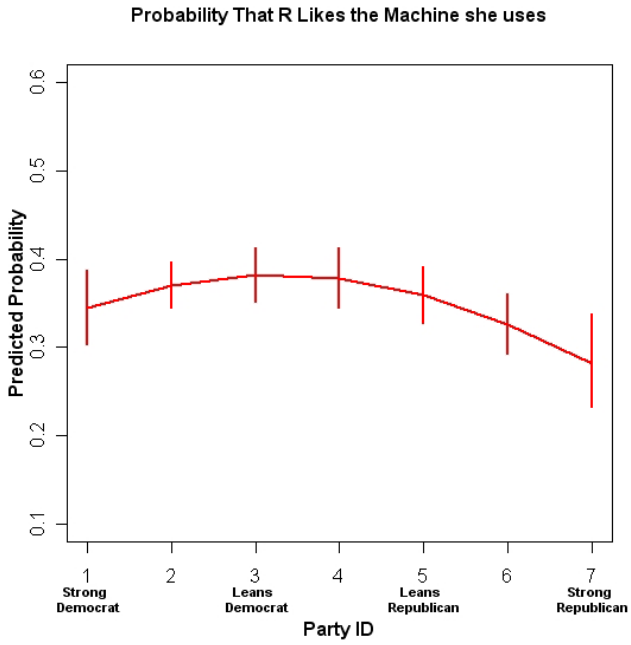
3a. Egocentric vote confidence



3b. System confidence



3c. Machine preference



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